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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,122	08/30/2001	Yasuo Kondo	P 282901 57395-US-HH/yo	6941
909	7590	06/17/2004	EXAMINER	
PILLSBURY WINTHROP, LLP P.O. BOX 10500 MCLEAN, VA 22102			MCHENRY, KEVIN L	
			ART UNIT	PAPER NUMBER
			1725	

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/942,122

Applicant(s)

KONDO ET AL.

Examiner

Kevin L McHenry

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 10,14,17,19 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,6,9 and 15 is/are rejected.
- 7) ☒ Claim(s) 3,4,7,8,11-13,16 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/30/01.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

### ***Claim Objections***

1. Claim 18 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 18 recites limitations regarding the content of the actuation fuel, an intended use for the cited device that does not further limit the structure of the device.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Barber (U.S.P. 4,025,612).

Barber teaches a hydrogen supply device that includes a rotary thermal storage that rotates between a low temperature fluid passage and a high temperature fluid passage so that the low and high temperature fluids pass through the rotary thermal storage and heat is exchanged between the two passages. The device includes a reforming material supply section 11 for the low temperature passage that is upstream of a rotary thermal storage and a reforming section 26 arranged after the low temperature passage. The device also includes a combustion gas supply, in this case a supply of

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carbon dioxide, for the high temperature passage. (See U.S.P. 4,025,612; Figures 1 and 4; column 1, lines 5-6; column 3, lines 55-68; column 4, lines 1-3; column 6, lines 56-62; column 7, lines 3-43).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 5, 6, 9, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barber (U.S.P. 4,025,612) as applied to claim 1 above, and further in view of DuBose (U.S.P. 6,013,385).

Barber teaches the device noted above in section 3. However, Barber does not teach a pressurizing means for the high temperature passage, a pressure adjusting means, using the device with a fuel cell, or that the rotary thermal storage has holes for the gas to pass through.

DuBose teaches a rotary thermal storage that is used to exchange heat between the supply and exhaust gas streams of a fuel cell. A throttling valve is located in the exhaust conduit to maintain an operating pressure in the air stream for the fuel cell cathode. DuBose teaches that the rotary thermal storage has pores that allow gas streams to pass through and can be designed to filter components from the air streams.

(See U.S.P. 6,013,385; Figure 2; column 1, lines 10-12; column 2, lines 46-51; column 3, lines 16-23; column 5, lines 25-36, 61-66; column 6, lines 20-32, 47-51).

***Allowable Subject Matter***

6. Claims 3, 4, 7, 8, 11-13, 16, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: the instant application is deemed to be a nonobvious improvement over the invention of Barber (U.S.P. 4,025,612). The improvements comprise a gas compressor located in the low temperature fluid passage on a downstream side of the heat exchange section, the communicating passage, and the high temperature fluid passage on an upstream side of the heat exchange section; a pressure detecting means for the low temperature fluid passage in the vicinity of the rotary thermal storage, a second pressure detecting means for the high temperature fluid passage in a vicinity of the rotary thermal storage, and control means for opening a pressure control valve according to pressures detected by the two detecting means; an off gas supply path through which unreacted hydrogen not sufficiently consumed by the hydrogen consumption device is supplied to the combustion gas supply section; igniting means provided in the combustion gas supply for igniting fuel to produce combustion gas; an oxidation catalyst affixed to the surface of the rotary thermal storage.

***Conclusion***

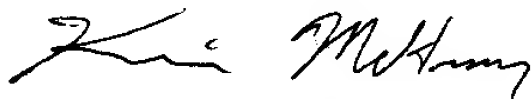
8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Galajda, Jr. (U.S.P. 3,211,148), Fetzner (U.S.P. 4,678,643), Seike et al. (U.S.P. 5,234,048), Seike et al. (U.S.P. 5,145,011), Haogland (U.S.P. 6,565,999), Spokoyny et al. (U.S.P. 5,323,842), JP 62-258994, JP 62-261895; Kritzer et al. (U.S.P. 5,397,548), and Andersson (U.S.P. 4,562,053) are cited of interest for illustrating the state of the art in rotary heat exchangers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L McHenry whose telephone number is (571) 272-1181. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin McHenry



TOM DUNN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700